

IN THE CLAIMS

1. - 46. (Cancelled.)

47. (New) A method of operating at least one optical node, comprising the steps of:

applying optical wavelength signals to inputs of respective ones of a plurality of optical amplifiers; and

selectively coupling output power of a plurality of optical pumps to selected ones of the optical amplifiers through a coupler, to cause the optical amplifiers to operate in a saturation mode, wherein a saturation level of each optical amplifier is either substantially the same, or different, depending on the output power of each optical pump.

48. (New) The method according to Claim 47, wherein the optical amplifiers are arranged in subsets, and the selectively coupling step selectively couples the output power of each of the optical pumps to each optical amplifier of a corresponding one of the subsets.

49. (New) The method according to Claim 47, further comprising the step of demultiplexing an optical signal including multiple wavelengths into the optical wavelength signals.

50. (New) The method according to Claim 47, wherein the optical amplifiers are arranged in subsets, and each optical amplifier within a same subset receives at least a portion of the output power coupled to that subset by the coupler.

51. (New) An optical node comprising:
a plurality of optical amplifiers arranged to influence a power level of corresponding channels within an optical signal;
a plurality of optical pumps; and
a coupler, arranged to selectively couple output power of the plurality of optical pumps to selected ones of the optical amplifiers, to cause the optical amplifiers to provide an output power level within a saturation mode,
wherein the output power level of each optical amplifier is either substantially the same, or different, depending on the output power of each optical pump.

52. (New) The optical node according to Claim 51, wherein the optical amplifiers are arranged in subsets, and the coupler couples the output power of each of the optical pumps to each optical amplifier of a corresponding one of the subsets.

53. (New) The optical node according to Claim 51, wherein the optical amplifiers are arranged in subsets, and each optical amplifier within a same subset receives at least a portion of the output power coupled to that subset by the coupler.

54. (New) The optical node according to Claim 51, further comprising a spare optical pump, wherein the coupler is adapted to selectively couple an output power of the spare optical pump to at least one of the optical amplifiers.

55. (New) The optical node according to Claim 51, wherein the output power level within the saturation mode prevents lasing in an optical communication system within which the optical node operates.

56. (New) A method for operating an optical communication system, comprising the steps of:

amplifying a power level of each of a plurality of optical channels within at least one optical node of the optical communication system, through a corresponding plurality of optical amplifiers arranged to amplify respective ones of the optical channels; and

selectively controlling the power level of each amplifier so that each optical amplifier operates in a saturation mode.

57. (New) The method according to Claim 56, further comprising the step of demultiplexing an optical signal including multiple wavelengths into the plurality of optical channels.

58. (New) The method according to Claim 56, wherein the selectively controlling step includes selectively coupling at least a portion of power output from at least one pump source, to the optical amplifiers.

59. (New) A method according to Claim 56, wherein operation of each optical amplifier in the saturation mode enables the optical channels to be successfully communicated through an increased number of hops relative to a case where the optical amplifiers are not operated in the saturation mode.

60. (New) An optical node, comprising:
a plurality of optical amplifiers arranged to influence a power level of each of a plurality of optical channels; and
a controller, arranged to selectively control the power level of each optical amplifier so that each optical amplifier operates in a saturation mode.

61. (New) The optical node according to Claim 60, wherein the controller selectively couples at least a portion of power output from at least one pump source, to the optical amplifiers.

62. (New) The optical node according to Claim 60, wherein the optical amplifiers are arranged in subsets, and the controller couples at least a portion of power

output from each of a plurality of pump sources to each optical amplifier within a same subset.

63. (New) The optical node according to Claim 60, wherein operation of each optical amplifier in the saturation mode prevents lasing in an optical communication system within which the optical node operates.

64. (New) The optical node according to Claim 60, wherein operation of each optical amplifier in the saturation mode enables the optical channels to be successfully communicated through an increased number of hops relative to a case where the optical amplifiers are not operated in the saturation mode.

65. (New) The optical node according to Claim 60, further comprising a core that includes at least one of an optical cross connect switch and an optical add-drop multiplexer, wherein the core is optically coupled to the optical channels.

66. (New) A method for operating an optical communication system having at least one optical node, the method comprising the steps of:

amplifying a power level of each of a plurality of optical channels of an optical signal through corresponding ones of a plurality of optical amplifiers; and

providing an output of each of a plurality of optical pumps to each optical amplifier of a corresponding one of a plurality of subsets of the optical amplifiers, to cause the optical amplifiers of the corresponding subset to provide a predetermined output power level.